

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

The foregoing amendment is for the purpose of effecting some obvious language changes which are self-explanatory.

Claims 11-21 have been rejected under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is believed that this rejection has been overcome by the foregoing amendment, which changes the expression "humic-like nature," in claims 12 and 19 to "having humic properties" and the expression "activated alkaline" in claim 12 to "activated in alkaline medium".

Claims 1-15 and 17-21 have been rejected under 35 U.S.C. 102(b) as being anticipated by Van de Venter et al., (U.S. Patent 5,302,524), who disclose a coal derived oxidation product suitable for stimulating seedling growth. The product is prepared by mixing coal, e.g., lignite, with an aqueous medium to produce a slurry having a pH in the range of 4 to 9, reacting the slurry with a gaseous oxidant comprising oxygen to cause the oxidation of the coal such that it contains humic acids, and separating the oxidized coal. However this reference has no disclosure or suggestion of the presence of ammonia in the oxidizing solution, which is a critical feature of applicants' process as recited in independent claim 11, and is

necessary in forming a humas-like fertilizer characterized by a slow release effect; see pag 3, line 27 and 28 and page 4, lines 25-34 of the specification. Contrary to the statement in the Office Action on page 4, paragraph 4, there is absolutely no teaching by Van de Venter et al. of the addition of ammonium hydroxide to the coal slurry to obtain a pH of 4 to 9. Furthermore, there is no basis for the statement at the top of page 5 of the Office Action that the addition of ammonia solution "must be inherent". Rather, the latter statement is contradicted by the Van de Venter et al. disclosure itself which states as follows at column 3, lines 1-5.

The pH of the slurry will depend to a large extent on the nature of the coal which is being oxidised. The aqueous medium may contain a buffer but **otherwise no expensive reagents such as alkali as are necessary in the liquid medium oxidation processes mentioned above need to be used.** (emphasis added)

In this connection, note that the only disclosure by Van de Venter et al. of ammonium hydroxide at column 3, line 17 and 18, is related to obtaining "a pH of 12 or higher", in order to dissolve the humic acids so that the oxidized coal may be separated from the alkaline solution containing such humic acids.

In addition to the use of ammonia during oxidation as recited in independent claim 11, Van de Venter et al. also does not disclose specific conditions recited in claim 12, including an oxidation temperature of "below 100°C," in view of the only range of temperature of 100-300°C disclosed by Van de Venter in column 3, line 52, and a maximum partial pressure of "less than 0.1 MPa" in view of the

minimum value of 0.1 MPa disclosed by Van de Venter et al. in column 3, line 63.

Finally with regard to product claims 19 and 20, there is no disclosure by Van de Venter et al of the a composition with the percentages of the specific types of nitrogen recited in claim 19, particularly the ammonium nitrogen which would not be present in the fertilizer produced by Van de Venter et al. Note that the use of ammonium hydroxide as disclosed in col 3, lines 17 and 18 results in the ammonium ion being present in the resulting humic acid solution rather than in the separated oxidized fertilizer.

In view of the lack of disclosure by Van de Venter et al. of significant elements of applicants' method and product recited in claims 11-15 and 17-21, the rejection of the claims under 35 U.S.C. 102(b) as anticipated by Van de Venter et al. is not well taken and should be withdrawn.

Claims 11-16 and 19-21 have been rejected under 35 U.S.C. 102(b) as being anticipated by Fischer et al. (US Patent 5,720,792), who disclose an organic fertilizer produced by the oxidative ammonolysis of industrial lignin. This rejection is respectfully traversed since the lignin of the reference and the lignite to which applicants' claims are limited, are substantially different materials. Thus "lignite", as recited in applicants' claims, is defined in Merriam-Webster's Collegiate Dictionary, Tenth Edition, as "a usually brownish black coal intermediate between peat and bituminous coal", whereas "lignin" is defined in the

same reference work as "an amorphous polymer related to cellulose that provides rigidity and together with cellulose forms the woody cell walls of plants and the cementing material between them." The alleged similarities of conditions mentioned in the disclosure of Fischer et al. and those recited in applicants' claims do not by any means justify a rejection based on anticipation under 35 U.S.C. 102, in view of the differences between the materials involved, since such a rejection presupposes that the subjects of the claims and the reference are identical rather than merely similar in some respects.

Claim 16 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Van de Venter et al. (US Patent 5,302,524-wrongly cited as 5,342,524) in view of EP 282,250.

As pointed out previously, Van de Venter et al. do not disclose or render obvious applicants' basic method for making a lignite derived organic fertilizer as covered in broadest claim 11 of the instant application. Moreover, even on the assumption that applicants' method is disclosed by Van de Venter et al., the combination of the teachings of Van de Venter et al. and EP 282,250 still would not render obvious the method recited in claim 16 wherein the lignite is in admixture with any of certain other substances including lignins, lignocellulose, and wood and bark particles. The reason for this conclusion is that while EP 282,250 discloses mixtures of an alkali metal salt of humic and any of certain known

plant nutrients for the improvement of plant yields, the EP patent has no disclosure or suggestion of any mixture comprising any of the substances recited in the method of rejected claim 16 being in admixture with applicants' lignite derived organic fertilizer. Thus, there is nothing which would lead a person having ordinary skill in the art to combine any portions of the disclosures of Van de Venter et al and the EP patent so as to arrive at the method of claim 16. It is noted in this connection that there is no basis for the characterization of the substances recited in claim 16 as being in admixture with the lignite fertilizer, as "lignitic" materials, or any of the materials disclosed by Van de Venter et al. as "lignins" as expressed in the Office Action; see the foregoing explanation of the difference between "lignite" to which the adjective "lignitic" refers, and "lignin" which is not disclosed by Van de Venter et al.

Claims 19 and 20 have been rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative under 35 U.S.C. 103(a), as obvious over SU 333,156, which discloses a fertilizer of high nitrogen content obtained by subjecting a lignin hydrolysate to ammonolysis and oxidation. It is submitted however, that this disclosure neither anticipates nor renders obvious applicants' product because of the significant differences between lignite, which is the starting material applicants' product, and lignin, which is the starting material for the product of the reference. In view of this, there is no basis for any assumptions that the products might be

identical, which is necessary for a 35 U.S.C. 102 rejection, or that one skilled in the art would be led by the lignin based product of the reference, to produce applicants' lignite derived product. Furthermore, the reference product is stated to contain 22.5% nitrogen, and even assuming the remaining 77.5% of the product to be all carbon, which is not likely the C/N ratio would be a maximum of 3.4, critically below applicants' minimum of 9, thus providing another reason for concluding that the rejection is not sound.

Claims 19-21 have been rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over SU 1763437 or Davis et al. (US Patent 2,027,766), or Karcher et al. (US Patent 3,111,404)

SU 1763437 (SU '437) discloses the production of an organic-mineral fertilizer by treating a milled oxidized brown coal having a moisture content of 55-60% with a 42% aqueous solution of KOH or NaOH for 30 minutes followed by treatment with a 25% aqueous ammonia solution in an amount of 10-12 wt. % based on the weight of the coal, for a period of 10 minutes. The product has a pH of 8.6 to 9.7 which is not favorable for a high ammonium content. Since no oxidation step is described in the abstract, it is submitted that the "oxidized brown coal" starting material is merely a low grade lignite with a relatively high oxygen content in the elementary composition. Thus, due to the short reaction time and conditions of reaction, e.g. high alkali content and pH, apparently ambient temperature and

apparently no addition of suitable and effective oxidizing agents, no oxidative ammonolysis takes place and the nitrogen of the ammonia cannot be bound to the organic structure of the lignite. Thus a desirable C/N ratio with the advantageously varying forms of bound nitrogen, as recited in claim 19, cannot be accomplished. Applicants' claimed product is therefore substantially different from that of the reference, the disclosure of which would not suggest such product to a person having ordinary skill in the art.

Davis et al. disclose the production of organic fertilizer materials by treating an organic material such as peat or lignite with ammonia at an elevated temperature, e.g. at least 50°C, for an extended period of 2 to 24 hours. However, the simultaneous use of an oxidizing agent is neither indicated nor disclosed, and the method is therefore an ordinary ammoniation, rather than, in contrast with applicants' method, an oxidative ammonolysis. Therefore, the product of the reference will not have the various types of nitrogen content and C/N ratio as recited in the rejected claims, and there is nothing in the reference which would lead the skilled person to modify the method disclosed in the reference so as to obtain applicants' claimed product.

Karcher et al. disclose a method of forming a granular ammonium humate fertilizer including the steps of scrubbing a pulverized humic acid containing ore, e.g., leonardite, or oxidized lignite, with phosphoric acid, to react with metal ions

therein, ammoniating the resulting ore-acid slurry to form a colloidal dispersion of ammonium humate, filtering undissolved solids from the dispersion to obtain a purified colloidal suspension and drying the suspension to form a granular ammonium humate fertilizer. The method thus is merely an extraction with ammonia for forming and subsequently removing ammonium salts of humic acid. It is submitted that the treatment with ammonia without a simultaneous reaction with an oxidizing agent is not an oxidative ammonolysis as it is in the case of applicants' method, which results in a product having a C/N ratio and proportions of different types of bound nitrogen substantially different from the properties of applicants' product, as recited in claim 19. Furthermore, there is nothing in the disclosure Karcher et al. to lead the person skilled in the art to modify the disclosed method so as to obtain a product with properties within or suggestive of those of applicants claimed product.

Thus application is now thought to be in condition for allowance and such action at an early date is earnestly solicited.

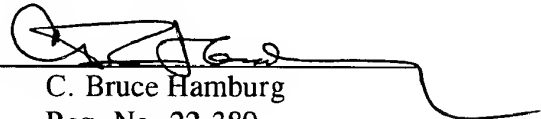
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Accordingly, please charge the fee for two months extension of time of
\$205.00 to Deposit Account No. 10-1250.

Respectfully submitted,

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